

SEQUENCE LISTING

<110> ALIBHAI, MURTAZA F.
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<120> PREPARATION OF DEALLERGENIZED PROTEINS AND PERMUTEINS

<130> 11899.0217.DVUS02

<150> US 09/755,630

<151> 2001-01-05

<150> US 60/174,669

<151> 2000-01-06

<160> 295

<170> PatentIn version 3.2

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<211> 1158

<212> DNA

<213> Solanum tuberosum

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ttattgactg ctatgataag tactccaaat gaaaacaatc gaccctttgc tgctgccaaa	300
gaaattgtac ctttttactt cgaacatggc cctcagattt ttaatcctag tgggtcaaatt	360
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actcgtgtgc atcaagcttt gacagaagtt gtcattctca gctttgacat caaaacaaat	480
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tatgacataa gttattccac agcagcagct ccaacatatt ttctctcgca ttactttggt	600
actaatacta gtaatggaga tgaatatgag ttcaatcttg ttgatgggtgc tgttgctact	660
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gcatttgctt caattaggtc attgaattac aaaaaaatgc tgttgctctc attaggcact	780
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Ser Ile Asp Gly Gly Gly Ile Arg Gly Ile Ile Pro Ala Thr Ile Leu
35 40 45
Glu Phe Leu Glu Gly Gln Leu Gln Glu Met Asp Asn Asn Ala Asp Ala
50 55 60
Arg Leu Ala Asp Tyr Phe Asp Val Ile Gly Gly Thr Ser Thr Gly Gly
65 70 75 80
Leu Leu Thr Ala Met Ile Ser Thr Pro Asn Glu Asn Asn Arg Pro Phe
85 90 95
Ala Ala Ala Lys Glu Ile Val Pro Phe Tyr Phe Glu His Gly Pro Gln
100 105 110
Ile Phe Asn Pro Ser Gly Gln Ile Leu Gly Pro Lys Tyr Asp Gly Lys
115 120 125
Tyr Leu Met Gln Val Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His
130 135 140
Gln Ala Leu Thr Glu Val Val Ile Ser Ser Phe Asp Ile Lys Thr Asn
145 150 155 160
Lys Pro Val Ile Phe Thr Lys Ser Asn Leu Ala Asn Ser Pro Glu Leu
165 170 175
Asp Ala Lys Met Tyr Asp Ile Ser Tyr Ser Thr Ala Ala Ala Pro Thr
180 185 190
Tyr Phe Pro Pro His Tyr Phe Val Thr Asn Thr Ser Asn Gly Asp Glu
195 200 205
Tyr Glu Phe Asn Leu Val Asp Gly Ala Val Ala Thr Val Ala Asp Pro
210 215 220
Ala Leu Leu Ser Ile Ser Val Ala Thr Arg Leu Ala Gln Lys Asp Pro
225 230 235 240
Ala Phe Ala Ser Ile Arg Ser Leu Asn Tyr Lys Lys Met Leu Leu Leu
245 250 255

Ser Leu Gly Thr Gly Thr Thr Ser Glu Phe Asp Lys Thr Tyr Thr Ala
260 265 270

Lys Glu Ala Ala Thr Trp Thr Ala Val His Trp Met Leu Val Ile Gln
275 280 285

Lys Met Thr Asp Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser
290 295 300

Thr Ala Phe Gln Ala Leu Asp Ser Lys Asn Asn Tyr Leu Arg Val Gln
305 310 315 320

Glu Asn Ala Leu Thr Gly Thr Thr Thr Glu Met Asp Asp Ala Ser Glu
325 330 335

Ala Asn Met Glu Leu Leu Val Gln Val Gly Glu Asn Leu Leu Lys Lys
340 345 350

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Ser Tyr
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acttcaggaa atggacaata atgcagatgc aagacttgca gattactttg atgtaattgg 180
 aggaacaagt acaggaggtt tattgactgc tatgataagt actccaaatg aaaacaatcg 240
 accctttgct gctgccaaag aaattgtacc tttttacttc gaacatggcc ctcagatttt 300
 taatcctagt ggtcaaattt taggccc aaa ataatatctta tgcaagttct 360
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 ggcagctacc tggactgctg tacattggat gttagttata cagaaaatga ctgatgcagc 840
 aagttcttac atgactgatt attacctttc tactgctttt caagctcttg attcaaaaaa 900
 caattacctc agggttcaag aaaatgcatt aacaggcaca actactgaaa tggatgatgc 960
 ttctgaggct aatatggaat tattagtaca agttggtgaa aacttattga agaaaccagt 1020
 ttccgaagac aatcctgaaa cctatgagga agctctaaag aggtttgcaa aattgctctc 1080
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Ile Pro Ala Glu Ala Val Ile Gly Tyr Ser Asp Leu Glu Gly Asp Phe
 35 40 45

Asp Val Ala Val Leu Pro Phe Ser Asn Ser Thr Asn Asn Gly Leu Leu
 50 55 60

Phe Ile Asn Thr Thr Ile Ala Ser Ile Ala Ala Lys Glu Glu Gly Val
 65 70 75 80

Ser Leu Glu Lys Arg Glu Ala Glu Ala Gln Leu Gly Glu Met Val Thr

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Lys Lys Pro Val Ser Glu Asp Asn Pro Glu Thr Tyr Glu Glu Ala Leu
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Lys Ala Ser Tyr
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20 25 30

Glu Gly Gln Leu Gln Glu Met Asp Asn Asn Ala Asp Ala Arg Leu Ala
35 40 45

Asp Tyr Phe Asp Val Ile Gly Gly Thr Ser Thr Gly Gly Leu Leu Thr
50 55 60

Ala Met Ile Ser Thr Pro Asn Glu Asn Asn Arg Pro Phe Ala Ala Ala
65 70 75 80

Lys Glu Ile Val Pro Phe Tyr Phe Glu His Gly Pro Gln Ile Phe Asn
85 90 95

Pro Ser Gly Gln Ile Leu Gly Pro Lys Tyr Asp Gly Lys Tyr Leu Met
100 105 110

Gln Val Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His Gln Ala Leu
115 120 125

Thr Glu Val Val Ile Ser Ser Phe Asp Ile Lys Thr Asn Lys Pro Val
130 135 140

Ile Phe Thr Lys Ser Asn Leu Ala Asn Ser Pro Glu Leu Asp Ala Lys
145 150 155 160

Met Tyr Asp Ile Ser Tyr Ser Thr Ala Ala Ala Pro Thr Tyr Phe Pro
165 170 175

Pro His Tyr Phe Val Thr Asn Thr Ser Asn Gly Asp Glu Tyr Glu Phe
180 185 190

Asn Leu Val Asp Gly Ala Val Ala Thr Val Ala Asp Pro Ala Leu Leu
195 200 205

Ser Ile Ser Val Ala Thr Arg Leu Ala Gln Lys Asp Pro Ala Phe Ala
210 215 220

Ser Ile Arg Ser Leu Asn Tyr Lys Lys Met Leu Leu Leu Ser Leu Gly
 225 230 235 240
 Thr Gly Thr Thr Ser Glu Phe Asp Lys Thr Tyr Thr Ala Lys Glu Ala
 245 250 255
 Ala Thr Trp Thr Ala Val His Trp Met Leu Val Ile Gln Lys Met Thr
 260 265 270
 Asp Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser Thr Ala Phe
 275 280 285
 Gln Ala Leu Asp Ser Lys Asn Asn Tyr Leu Arg Val Gln Glu Asn Ala
 290 295 300
 Leu Thr Gly Thr Thr Thr Glu Met Asp Asp Ala Ser Glu Ala Asn Met
 305 310 315 320
 Glu Leu Leu Val Gln Val Gly Glu Asn Leu Leu Lys Lys Pro Val Ser
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Met	Val	Thr	Val	Leu	Ser	Ile	Asp	Gly	Gly
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Leu	Ser	Ile	Asp	Gly	Gly	Gly	Ile	Arg	Gly
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Gly	Gly	Gly	Ile	Arg	Gly	Ile	Ile	Pro	Ala
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Arg	Gly	Ile	Ile	Pro	Ala	Thr	Ile	Leu	Glu
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<400> 22

Leu Glu Phe Leu Glu Gly Gln Leu Gln Glu
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<400> 23

Glu Gly Gln Leu Gln Glu Met Asp Asn Asn
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<400> 24

Gln Glu Met Asp Asn Asn Ala Asp Ala Arg
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Asn Asn Ala Asp Ala Arg Leu Ala Asp Tyr
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Gly Leu Leu Thr Ala Met Ile Ser Thr Pro
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Ala Met Ile Ser Thr Pro Asn Glu Asn Asn
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Thr Pro Asn Glu Asn Asn Arg Pro Phe Ala
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Asn Asn Arg Pro Phe Ala Ala Ala Lys Glu
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Phe Ala Ala Ala Lys Glu Ile Val Pro Phe
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Lys Tyr Leu Met Gln Val Leu Gln Glu Lys
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Glu Lys Leu Gly Glu Thr Arg Val His Gln
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Glu Thr Arg Val His Gln Ala Leu Thr Glu
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His Gln Ala Leu Thr Glu Val Val Ile Ser
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Thr Glu Val Val Ile Ser Ser Phe Asp Ile
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Met Tyr Asp Ile Ser Tyr Ser Thr Ala Ala
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Ser Tyr Ser Thr Ala Ala Ala Pro Thr Tyr
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Thr Tyr Phe Pro Pro His Tyr Phe Val Thr
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Pro His Tyr Phe Val Thr Asn Thr Ser Asn
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1 5 10

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<220>
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 <400> 63

 Asn Leu Val Asp Gly Ala Val Ala Thr Val
 1 5 10

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 Gly Ala Val Ala Thr Val Ala Asp Pro Ala
 1 5 10

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 1 5 10

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Leu Asn Tyr Lys Lys Met Leu Leu Leu Ser
1 5 10

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<400> 73

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Thr Gly Thr Thr Ser Glu Phe Asp Lys Thr
1 5 10

<210> 76
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Ser Glu Phe Asp Lys Thr Tyr Thr Ala Lys
1 5 10

<210> 77
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Lys Thr Tyr Thr Ala Lys Glu Ala Ala Thr
1 5 10

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Ala Lys Glu Ala Ala Thr Trp Thr Ala Val
1 5 10

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Ala Thr Trp Thr Ala Val His Trp Met Leu
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<210> 80

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<400> 80

Ala Val His Trp Met Leu Val Ile Gln Lys
1 5 10

<210> 81

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<400> 81

Met Leu Val Ile Gln Lys Met Thr Asp Ala
1 5 10

<210> 82

<211> 10

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<400> 82

Gln	Lys	Met	Thr	Asp	Tyr	Tyr	Leu	Ser	Thr
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<220>
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<400> 83

Asp	Ala	Ala	Ser	Ser	Tyr	Met	Thr	Asp	Tyr
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Ser	Tyr	Met	Thr	Asp	Tyr	Tyr	Leu	Ser	Thr
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Asp	Tyr	Tyr	Leu	Ser	Thr	Ala	Phe	Gln	Ala
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<400> 86

Ser	Thr	Ala	Phe	Gln	Ala	Leu	Asp	Ser	Lys
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Gln	Ala	Leu	Asp	Ser	Lys	Asn	Asn	Tyr	Leu
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Ser	Lys	Asn	Asn	Tyr	Leu	Arg	Val	Gln	Glu
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Tyr	Leu	Arg	Val	Gln	Glu	Asn	Ala	Leu	Thr
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Gln	Glu	Asn	Ala	Leu	Thr	Gly	Thr	Thr	Thr
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<400> 91

Leu Thr Gly Thr Thr Thr Glu Met Asp Asp
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<400> 92

Thr Thr Glu Met Asp Asp Ala Ser Glu Ala
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<210> 93

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<400> 93

Asp Asp Ala Ser Glu Ala Asn Met Glu Leu
1 5 10

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Glu Ala Asn Met Glu Leu Leu Val Gln Val
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<400> 95

Glu Leu Leu Val Gln Val Gly Glu Asn Leu
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Gln Val Gly Glu Asn Leu Leu Lys Lys Pro
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Asn Leu Leu Lys Lys Pro Val Ser Glu Asp
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Lys Pro Val Ser Glu Asp Asn Pro Glu Thr
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Glu Asp Asn Pro Glu Thr Tyr Glu Glu Ala
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Glu Thr Tyr Glu Glu Ala Leu Lys Arg Phe
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 Arg Phe Ala Lys Leu Leu Ser Asp Arg Lys
 1 5 10

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Asp Tyr Phe Asp Val Ile Ala Gly Thr Ser
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Val Ile Gly Gly Thr Ser Thr Gly Gly Leu
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Val Ile Ala Gly Thr Ser Thr Gly Ala Leu
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 1 5 10

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Ala	Ala	Ala	Ala	Thr	Tyr	Phe	Pro	Pro	His
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 1 5 10

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 Ala Ala Ala Pro Thr Ala Phe Pro Pro His
 1 5 10

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 1 5 10

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Ala Ala Ala Pro Pro Phe Phe Pro Pro His
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 Ala Ala Ala Pro Thr Phe Phe Pro Pro His
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<400> 205

Tyr Leu Thr Val Ala Ala Ala Ala Leu Thr
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<400> 206

Phe Leu Arg Val Gln Glu Asn Ala Leu Thr
1 5 10

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<211> 10
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<220>
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<400> 207

Asn Asn Tyr Leu Arg Val Gln Glu Asn Ala
1 5 10

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<220>
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<400> 208

Lys Lys Tyr Leu Arg Ile Gln Asp Asp Thr
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 <400> 209

 Asn Asn Phe Leu Arg Val Gln Glu Asn Ala
 1 5 10

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 <220>
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 1 5 10

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 1 5 10

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 Glu Ala Tyr Glu Glu Ala Leu Lys Arg Phe
 1 5 10

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<400> 213

Glu Thr Ala Glu Glu Ala Leu Lys Arg Phe
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<400> 214

Glu Thr Tyr Ala Glu Ala Leu Lys Arg Phe
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Glu Thr Tyr Glu Glu Ala Leu Ala Arg Phe
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<400> 218

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<210> 219

<211> 10

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<400> 219

Glu Thr Tyr Glu Glu Ala Leu Lys Arg Ala
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Glu Thr Phe Glu Glu Ala Leu Lys Arg Phe
1 5 10

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<400> 223

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<400> 225

Ala	Ala	Leu	Lys	Arg	Phe	Ala	Lys	Leu	Leu
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<400> 226

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1 5 10

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<400> 228

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<400> 229

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<400> 230

Glu Ala Leu Lys Arg Phe Ala Ala Leu Leu
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<400> 231

Glu Ala Leu Lys Arg Phe Ala Lys Ala Leu
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 <400> 232

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 1 5 10

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 <400> 233

 Gln Ser Leu Ala Asp Phe Ala Lys Gln Leu
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 <400> 234

 Ala Ala Leu Ala Ala Phe Ala Lys Leu Leu
 1 5 10

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 <400> 235

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 1 5 10

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 <400> 236

 Asp Phe Ala Lys Gln Leu Ser Asp Glu Arg
 1 5 10

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 <400> 237

 Ala Phe Ala Ala Leu Leu Ser Asp Arg Lys
 1 5 10

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 <400> 238

 Ser Thr Ala Ala Ala Pro Thr Tyr Phe Pro
 1 5 10

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 1 5 10

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 <400> 240

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 1 5 10

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 <400> 241


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20           25          30

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Thr Ala Val His Trp Met Leu Val Ile Gln Lys Met Thr Asp Ala Ala
35           40          45

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Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser Thr Ala Phe Gln Ala Leu
50           55          60

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Asp Ser Lys Asn Asn Tyr Leu Arg Val Gln Glu Asn Ala Leu Thr Gly
65           70          75          80

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Thr Thr Thr Glu Met Asp Asp Ala Ser Glu Ala Asn Met Glu Leu Leu
85           90          95

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 Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg Phe Ala Lys Leu Leu Ser
 115 120 125
 Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala Ser Tyr Gly Pro Gly Gln
 130 135 140
 Leu Gly Glu Met Val Thr Val Leu Ser Ile Asp Gly Gly Gly Ile Arg
 145 150 155 160
 Gly Ile Ile Pro Ala Thr Ile Leu Glu Phe Leu Glu Gly Gln Leu Gln
 165 170 175
 Glu Met Asp Asn Asn Ala Asp Ala Arg Leu Ala Asp Tyr Phe Asp Val
 180 185 190
 Ile Gly Gly Thr Ser Thr Gly Gly Leu Leu Thr Ala Met Ile Ser Thr
 195 200 205
 Pro Asn Glu Asn Asn Arg Pro Phe Ala Ala Ala Lys Glu Ile Val Pro
 210 215 220
 Phe Tyr Phe Glu His Gly Pro Gln Ile Phe Asn Pro Ser Gly Gln Ile
 225 230 235 240
 Leu Gly Pro Lys Tyr Asp Gly Lys Tyr Leu Met Gln Val Leu Gln Glu
 245 250 255
 Lys Leu Gly Glu Thr Arg Val His Gln Ala Leu Thr Glu Val Val Ile
 260 265 270
 Ser Ser Phe Asp Ile Lys Thr Asn Lys Pro Val Ile Phe Thr Lys Ser
 275 280 285
 Asn Leu Ala Asn Ser Pro Glu Leu Asp Ala Lys Met Tyr Asp Ile Ser
 290 295 300
 Tyr Ser Thr Ala Ala Ala Pro Thr Tyr Phe Pro Pro His Tyr Phe Val
 305 310 315 320
 Thr Asn Thr Ser Asn Gly Asp Glu Tyr Glu Phe Asn Leu Val Asp Gly
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<400> 250

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gacttgcaca aaaggatcca gcatttgctt caattaggtc attgaattac aaaaaaatgc 180

tgttgctctc attaggcact ggcaactact cagagtttga taaaacatat acagcaaaag 240

aggcagctac ctggactgct gtacattgga tgtagttat acagaaaatg actgatgcag 300

caagttctta catgactgat tattaccttt ctactgcttt tcaagctctt gattcaaaaa 360

acaattacct caggggtcaa gaaaatgcat taacaggcac aactactgaa atggatgatg 420

cttctgaggc taatatggaa ttattagtag aagttgggtga aaacttattg aagaaaccag 480

tttccgaaga caatcctgaa acctatgagg aagctctaaa gaggtttgca aaattgctct 540

ctgataggaa gaaactccga gcaaacaag cttcttatgg accaggacag ttgggagaaa 600

tggtgactgt tcttagtatt gatggagggtg gaattagagg gatcattccg gctaccattc 660

tcgaatttct tgaaggacaa cttcaggaaa tggacaataa tgcagatgca agacttgcag 720

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caaatttagc aaactctcca gaattggatg ctaagatgta tgacataagt tattccacag 1080

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<212> PRT
<213> Artificial

<220>
<223> Synthetic polypeptide

<400> 251

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20          25          30
Arg Leu Ala Gln Lys Asp Pro Ala Phe Ala Ser Ile Arg Ser Leu Asn
35          40          45
Tyr Lys Lys Met Leu Leu Leu Ser Leu Gly Thr Gly Thr Thr Ser Glu
50          55          60
Phe Asp Lys Thr Tyr Thr Ala Lys Glu Ala Ala Thr Trp Thr Ala Val
65          70          75          80
His Trp Met Leu Val Ile Gln Lys Met Thr Asp Ala Ala Ser Ser Tyr
85          90          95
Met Thr Asp Tyr Tyr Leu Ser Thr Ala Phe Gln Ala Leu Asp Ser Lys
100         105         110
Asn Asn Tyr Leu Arg Val Gln Glu Asn Ala Leu Thr Gly Thr Thr Thr
115         120         125
Glu Met Asp Asp Ala Ser Glu Ala Asn Met Glu Leu Leu Val Gln Val
130         135         140
Gly Glu Asn Leu Leu Lys Lys Pro Val Ser Glu Asp Asn Pro Glu Thr
145         150         155         160
Tyr Glu Glu Ala Leu Lys Arg Phe Ala Lys Leu Leu Ser Asp Arg Lys
165         170         175
Lys Leu Arg Ala Asn Lys Ala Ser Tyr Gly Pro Gly Gln Leu Gly Glu
180         185         190
Met Val Thr Val Leu Ser Ile Asp Gly Gly Gly Ile Arg Gly Ile Ile
195         200         205
Pro Ala Thr Ile Leu Glu Phe Leu Glu Gly Gln Leu Gln Glu Met Asp
210         215         220
Asn Asn Ala Asp Ala Arg Leu Ala Asp Tyr Phe Asp Val Ile Gly Gly
225         230         235         240
Thr Ser Thr Gly Gly Leu Leu Thr Ala Met Ile Ser Thr Pro Asn Glu
245         250         255
Asn Asn Arg Pro Phe Ala Ala Ala Lys Glu Ile Val Pro Phe Tyr Phe
260         265         270
Glu His Gly Pro Gln Ile Phe Asn Pro Ser Gly Gln Ile Leu Gly Pro
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305		310		315
320				
Asp Ile Lys Thr Asn Lys Pro Val Ile Phe Thr Lys Ser Asn Leu Ala				
	325		330	335
Asn Ser Pro Glu Leu Asp Ala Lys Met Tyr Asp Ile Ser Tyr Ser Thr				
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 ctacctggac tgctgtacat tggatgtag ttatacagaa aatgactgat gcagcaagtt 360
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aagacaatcc tgaacacctat gaggaagctc taaagagggt tgcaaaattg ctctctgata 600
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			20					25					30		
Gly	Ala	Val	Ala	Thr	Val	Ala	Asp	Pro	Ala	Leu	Leu	Ser	Ile	Ser	Val
		35					40					45			
Ala	Thr	Arg	Leu	Ala	Gln	Lys	Asp	Pro	Ala	Phe	Ala	Ser	Ile	Arg	Ser
		50				55					60				
Leu	Asn	Tyr	Lys	Lys	Met	Leu	Leu	Leu	Ser	Leu	Gly	Thr	Gly	Thr	Thr
65					70					75				80	
Ser	Glu	Phe	Asp	Lys	Thr	Tyr	Thr	Ala	Lys	Glu	Ala	Ala	Thr	Trp	Thr
			85						90					95	
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			100					105					110		
Ser	Tyr	Met	Thr	Asp	Tyr	Tyr	Leu	Ser	Thr	Ala	Phe	Gln	Ala	Leu	Asp
		115					120					125			
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	130					135					140				

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 165 170 175
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 180 185 190
 Arg Lys Lys Leu Arg Ala Asn Lys Ala Ser Tyr Gly Pro Gly Gln Leu
 195 200 205
 Gly Glu Met Val Thr Val Leu Ser Ile Asp Gly Gly Gly Ile Arg Gly
 210 215 220
 Ile Ile Pro Ala Thr Ile Leu Glu Phe Leu Glu Gly Gln Leu Gln Glu
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 Gly Gly Thr Ser Thr Gly Gly Leu Leu Thr Ala Met Ile Ser Thr Pro
 260 265 270
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 275 280 285
 Tyr Phe Glu His Gly Pro Gln Ile Phe Asn Pro Ser Gly Gln Ile Leu
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 Gly Pro Lys Tyr Asp Gly Lys Tyr Leu Met Gln Val Leu Gln Glu Lys
 305 310 315 320
 Leu Gly Glu Thr Arg Val His Gln Ala Leu Thr Glu Val Val Ile Ser
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 aaaatgcatt aacaggcaca actactgaaa tggatgatgc ttctgaggct aatatggaat 240
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 cctatgagga agctctaaag aggtttgcaa aattgctctc tgataggaag aaactccgat 360
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 ctccgcatta ctttgttact aatactagta atggagatga atatgagttc aatcttggtg 960
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Thr	Tyr	Thr	Ala	Lys	Glu	Ala	Ala	Thr	Trp	Thr	Ala	Val	His	Trp	Met	1	5	10	15
Leu	Val	Ile	Gln	Lys	Met	Thr	Asp	Ala	Ala	Ser	Ser	Tyr	Met	Thr	Asp	20	25	30	
Tyr	Tyr	Leu	Ser	Thr	Ala	Phe	Gln	Ala	Leu	Asp	Ser	Lys	Asn	Asn	Tyr	35	40	45	
Leu	Arg	Val	Gln	Glu	Asn	Ala	Leu	Thr	Gly	Thr	Thr	Thr	Glu	Met	Asp	50	55	60	
Asp	Ala	Ser	Glu	Ala	Asn	Met	Glu	Leu	Leu	Val	Gln	Val	Gly	Glu	Asn	65	70	75	
Leu	Leu	Lys	Lys	Pro	Val	Ser	Glu	Asp	Asn	Pro	Glu	Thr	Tyr	Glu	Glu	85	90	95	
Ala	Leu	Lys	Arg	Phe	Ala	Lys	Leu	Leu	Ser	Asp	Arg	Lys	Lys	Leu	Arg	100	105	110	
Ser	Asn	Lys	Ala	Ser	Tyr	Gly	Pro	Gly	Gln	Leu	Gly	Glu	Met	Val	Thr	115	120	125	
Val	Leu	Ser	Ile	Asp	Gly	Gly	Gly	Ile	Arg	Gly	Ile	Ile	Pro	Ala	Thr	130	135	140	
Ile	Leu	Glu	Phe	Leu	Glu	Gly	Gln	Leu	Gln	Glu	Met	Asp	Asn	Asn	Ala	145	150	155	
Asp	Ala	Arg	Leu	Ala	Asp	Tyr	Phe	Asp	Val	Ile	Gly	Gly	Thr	Ser	Thr	165	170	175	
Gly	Gly	Leu	Leu	Thr	Ala	Met	Ile	Ser	Thr	Pro	Asn	Glu	Asn	Asn	Arg	180	185	190	
Pro	Phe	Ala	Ala	Ala	Lys	Glu	Ile	Val	Pro	Phe	Tyr	Phe	Glu	His	Gly	195	200	205	
Pro	Gln	Ile	Phe	Asn	Pro	Ser	Gly	Gln	Ile	Leu	Gly	Pro	Lys	Tyr	Asp	210	215	220	
Gly	Lys	Tyr	Leu	Met	Gln	Val	Leu	Gln	Glu	Lys	Leu	Gly	Glu	Thr	Arg	225	230	235	
Val	His	Gln	Ala	Leu	Thr	Glu	Val	Val	Ile	Ser	Ser	Phe	Asp	Ile	Lys	245	250	255	
Thr	Asn	Lys	Pro	Val	Ile	Phe	Thr	Lys	Ser	Asn	Leu	Ala	Asn	Ser	Pro	260	265	270	
Glu	Leu	Asp	Ala	Lys	Met	Tyr	Asp	Ile	Ser	Tyr	Ser	Thr	Ala	Ala	Ala	275	280	285	
Pro	Thr	Tyr	Phe	Pro	Pro	His	Tyr	Phe	Val	Thr	Asn	Thr	Ser	Asn	Gly	290	295	300	
Asp	Glu	Tyr	Glu	Phe	Asn	Leu	Val	Asp	Gly	Ala	Val	Ala	Thr	Val	Ala	305	310	315	
Asp	Pro	Ala	Leu	Leu	Ser	Ile	Ser	Val	Ala	Thr	Arg	Leu	Ala	Gln	Lys				

	325		330		335										
Asp	Pro	Ala	Phe	Ala	Ser	Ile	Arg	Ser	Leu	Asn	Tyr	Lys	Lys	Met	Leu
			340					345					350		
Leu	Leu	Ser	Leu	Gly	Thr	Gly	Thr	Thr	Ser	Glu	Phe	Asp	Lys		
			355				360					365			

<210> 260
 <211> 55
 <212> DNA
 <213> Artificial

 <220>
 <223> Synthetic construct

 <400> 260
 ggagctcgag aaaagagagg ctgaagctaa tgcattaaca ggcacaacta ctgaa 55

 <210> 261
 <211> 39
 <212> DNA
 <213> Artificial

 <220>
 <223> Synthetic construct

 <400> 261
 ggtctagagg aattctcatt attcttgaac cctgaggta 39

 <210> 262
 <211> 1128
 <212> DNA
 <213> Artificial

 <220>
 <223> Synthetic construct

 <400> 262
 tcgagaaaag agaggctgaa gctaattgcat taacaggcac aactactgaa atggatgatg 60

 cttctgaggc taatatggaa ttattagtagc aagttgggtga aaacttattg aagaaaccag 120

 tttccgaaga caatcctgaa acctatgagg aagctctaaa gaggtttgca aaattgctct 180

 ctgataggaa gaaactccga gcaaacaag cttcttatgg accaggacag ttgggagaaa 240

 tgggtgactgt tcttagtatt gatggagggtg gaattagagg gatcattccg gctaccattc 300

 tcgaatttct tgaaggacaa cttcaggaaa tggacaataa tgcagatgca agacttgcag 360

 attactttga tgtaattgga ggaacaagta caggagggtt attgactgct atgataagta 420

 ctccaaatga aaacaatcga ccctttgctg ctgccaaaga aattgtacct ttttacttcg 480

 aacatggccc tcagattttt aatcctagtgt gtcaaatttt aggcccaaaa tatgatggaa 540

 aatatcttat gcaagttctt caagaaaaac ttggagaaac tcgtgtgcat caagctttga 600

 cagaagttgt catctcaagc tttgacatca aaacaaataa gccagtaata ttcactaagt 660

caaathtagc aaactctcca gaattggatg ctaagatgta tgacataagt tattccacag 720
 cagcagctcc aacatatattt cctccgcatt actttgttac taatactagt aatggagatg 780
 aatatgagtt caatcttggt gatgggtgctg ttgctactgt tgctgatccg gcgttattat 840
 ccattagcgt tgcaacgaga cttgcacaaa aggatccagc atttgcttca attaggtcat 900
 tgaattacaa aaaaatgctg ttgctctcat taggcactgg cactacttca gagtttgata 960
 aaacatatac agcaaaagag gcagctacct ggactgctgt acattggatg ttagttatac 1020
 agaaaatgac tgatgcagca agttcttaca tgactgatta ttacctttct actgcttttc 1080
 aagctcttga ttcaaaaaac aattacctca gggttcaaga ataatgag 1128

<210> 263

<211> 366

<212> PRT

<213> Artificial

<220>

<223> Synthetic polypeptide

<400> 263

Asn Ala Leu Thr Gly Thr Thr Thr Glu Met Asp Asp Ala Ser Glu Ala
 1 5 10 15

Asn Met Glu Leu Leu Val Gln Val Gly Glu Asn Leu Leu Lys Lys Pro
 20 25 30

Val Ser Glu Asp Asn Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg Phe
 35 40 45

Ala Lys Leu Leu Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala Ser
 50 55 60

Tyr Gly Pro Gly Gln Leu Gly Glu Met Val Thr Val Leu Ser Ile Asp
 65 70 75 80

Gly Gly Gly Ile Arg Gly Ile Ile Pro Ala Thr Ile Leu Glu Phe Leu
 85 90 95

Glu Gly Gln Leu Gln Glu Met Asp Asn Asn Ala Asp Ala Arg Leu Ala
 100 105 110

Asp Tyr Phe Asp Val Ile Gly Gly Thr Ser Thr Gly Gly Leu Leu Thr
 115 120 125

Ala Met Ile Ser Thr Pro Asn Glu Asn Asn Arg Pro Phe Ala Ala Ala
 130 135 140

Lys Glu Ile Val Pro Phe Tyr Phe Glu His Gly Pro Gln Ile Phe Asn
 145 150 155 160

Pro Ser Gly Gln Ile Leu Gly Pro Lys Tyr Asp Gly Lys Tyr Leu Met
 165 170 175

Gln Val Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His Gln Ala Leu
 180 185 190

Thr Glu Val Val Ile Ser Ser Phe Asp Ile Lys Thr Asn Lys Pro Val
 195 200 205
 Ile Phe Thr Lys Ser Asn Leu Ala Asn Ser Pro Glu Leu Asp Ala Lys
 210 215 220
 Met Tyr Asp Ile Ser Tyr Ser Thr Ala Ala Ala Pro Thr Tyr Phe Pro
 225 230 235 240
 Pro His Tyr Phe Val Thr Asn Thr Ser Asn Gly Asp Glu Tyr Glu Phe
 245 250 255
 Asn Leu Val Asp Gly Ala Val Ala Thr Val Ala Asp Pro Ala Leu Leu
 260 265 270
 Ser Ile Ser Val Ala Thr Arg Leu Ala Gln Lys Asp Pro Ala Phe Ala
 275 280 285
 Ser Ile Arg Ser Leu Asn Tyr Lys Lys Met Leu Leu Leu Ser Leu Gly
 290 295 300
 Thr Gly Thr Thr Ser Glu Phe Asp Lys Thr Tyr Thr Ala Lys Glu Ala
 305 310 315 320
 Ala Thr Trp Thr Ala Val His Trp Met Leu Val Ile Gln Lys Met Thr
 325 330 335
 Asp Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser Thr Ala Phe
 340 345 350
 Gln Ala Leu Asp Ser Lys Asn Asn Tyr Leu Arg Val Gln Glu
 355 360 365

<210> 264

<211> 1158

<212> DNA

<213> Artificial

<220>

<223> Synthetic construct

<400> 264

atggccacca ccaagagctt cctcactctg atcttcatga tcctggccac caccagcagc	60
accttcgccc agctcggcga gatggtgacc gtgctctcca tcgacggcgg tggcatcagg	120
ggcatcatcc cggccaccat cctggagtgc ctggagggcc aactccagga gatggacaac	180
aacgccgacg cccgcctggc cgactacttc gacgtgatcg gtggcaccag caccggcggg	240
ctcctgaccg ccatgatctc cactccgaac gagaacaacc gccccttcgc cgctgcgaag	300
gagatcgtcc cgcttacttc cgaacacggc cctcagattt tcaaccctc ggggtcaaac	360
ctgggccccca agtacgacgg caagtacctt atgcaagtgc ttcaggagaa gctgggagag	420
actaggggtgc accaggcgct gaccgaggtc gtcactctca gcttcgacat caagaccaac	480
aagccagtca tcttcaccaa gtccaacctg gccaacagcc cggagctgga cgctaagatg	540

tacgacatct cctactccac tgctgccgct cccacgtact tccctccgca ctacttcgtc 600
 accaacacca gcaacggcga cgagtacgag ttcaaccttg ttgacgggtgc ggtggctacg 660
 gtggcggaacc cggcgtcct gtccatcagc gtcgccacgc gcttggccca gaaggatcca 720
 gccttcgcta gcattaggag cctcaactac aagaagatgc tgctgctcag cctgggcact 780
 ggcacgacct ccgagttcga caagacctac actgccaagg aggccgctac ctggaccgcc 840
 gtccattgga tgctgggtcat ccagaagatg acggacgccg cttccagcta catgaccgac 900
 tactacctct ccactgcgtt ccaggcgctt gactccaaga acaactacct ccgtgttcag 960
 gagaatgcc tcaactggcac cagcaccgag atggacgatg cctccgaggc caacatggag 1020
 ctgctcgtcc aggtgggtga gaacctcctg aagaagcccg tctccgaaga caatcccagag 1080
 acctatgagg aagcgctcaa gcgctttgcc aagctgctct ctgataggaa gaaactccgc 1140
 gctaacaagg ccagctac 1158

<210> 265

<211> 386

<212> PRT

<213> Artificial

<220>

<223> Synthetic polypeptide

<400> 265

Met	Ala	Thr	Thr	Lys	Ser	Phe	Leu	Ile	Leu	Ile	Phe	Met	Ile	Leu	Ala	1	5	10	15
Thr	Thr	Ser	Ser	Thr	Phe	Ala	Gln	Leu	Gly	Glu	Met	Val	Thr	Val	Leu	20	25	30	
Ser	Ile	Asp	Gly	Gly	Gly	Ile	Arg	Gly	Ile	Ile	Pro	Ala	Thr	Ile	Leu	35	40	45	
Glu	Phe	Leu	Glu	Gly	Gln	Leu	Gln	Glu	Met	Asp	Asn	Asn	Ala	Asp	Ala	50	55	60	
Arg	Leu	Ala	Asp	Tyr	Phe	Asp	Val	Ile	Gly	Gly	Thr	Ser	Thr	Gly	Gly	65	70	75	80
Leu	Leu	Thr	Ala	Met	Ile	Ser	Thr	Pro	Asn	Glu	Asn	Asn	Arg	Pro	Phe	85	90	95	
Ala	Ala	Ala	Lys	Glu	Ile	Val	Pro	Phe	Tyr	Phe	Glu	His	Gly	Pro	Gln	100	105	110	
Ile	Phe	Asn	Pro	Ser	Gly	Gln	Ile	Leu	Gly	Pro	Lys	Tyr	Asp	Gly	Lys	115	120	125	
Tyr	Leu	Met	Gln	Val	Leu	Gln	Glu	Lys	Leu	Gly	Glu	Thr	Arg	Val	His	130	135	140	
Gln	Ala	Leu	Thr	Glu	Val	Val	Ile	Ser	Ser	Phe	Asp	Ile	Lys	Thr	Asn	145	150	155	160

Lys Pro Val Ile Phe Thr Lys Ser Asn Leu Ala Asn Ser Pro Glu Leu
 165 170 175
 Asp Ala Lys Met Tyr Asp Ile Ser Tyr Ser Thr Ala Ala Ala Pro Thr
 180 185 190
 Tyr Phe Pro Pro His Tyr Phe Val Thr Asn Thr Ser Asn Gly Asp Glu
 195 200 205
 Tyr Glu Phe Asn Leu Val Asp Gly Ala Val Ala Thr Val Ala Asp Pro
 210 215 220
 Ala Leu Leu Ser Ile Ser Val Ala Thr Arg Leu Ala Gln Lys Asp Pro
 225 230 235 240
 Ala Phe Ala Ser Ile Arg Ser Leu Asn Tyr Lys Lys Met Leu Leu Leu
 245 250 255
 Ser Leu Gly Thr Gly Thr Thr Ser Glu Phe Asp Lys Thr Tyr Thr Ala
 260 265 270
 Lys Glu Ala Ala Thr Trp Thr Ala Val His Trp Met Leu Val Ile Gln
 275 280 285
 Lys Met Thr Asp Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser
 290 295 300
 Thr Ala Phe Gln Ala Leu Asp Ser Lys Asn Asn Tyr Leu Arg Val Gln
 305 310 315 320
 Glu Asn Ala Leu Thr Gly Thr Thr Thr Glu Met Asp Asp Ala Ser Glu
 325 330 335
 Ala Asn Met Glu Leu Leu Val Gln Val Gly Glu Asn Leu Leu Lys Lys
 340 345 350
 Pro Val Ser Glu Asp Asn Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg
 355 360 365
 Phe Ala Lys Leu Leu Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala
 370 375 380

Ser Tyr
 385

<210> 266
 <211> 55
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic construct

<400> 266
 ggagctcgag aaaagagagg ctgaagctag cctcaactac aagaagatgc tgctg

55

<210> 267
 <211> 42
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic construct

<400> 267
 gccgagctgt cctggtccgt agctggcctt gttagcgcg ag 42

<210> 268
 <211> 36
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic construct

<400> 268
 gccagctacg gaccaggaca gctcggcgag atggtg 36

<210> 269
 <211> 39
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic construct

<400> 269
 ggtctagagg aattctcatt acctaattgct agcgaaggc 39

<210> 270
 <211> 1167
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic construct

<400> 270
 atggccacca ccaagagctt cctcatcctg atcttcatga tcttggccac caccagcagc 60
 accttcgcca gcctcaacta caagaagatg ctgctgctca gcctgggcac tggcacgacc 120
 tccgagttcg acaagaccta cactgccaaag gaggccgcta cctggaccgc cgtccattgg 180
 atgctggtca tccagaagat gacggacgcc gcttcagct acatgaccga ctactacctc 240
 tccactgcgt tccaggcgct tgactccaag aacaactacc tccgtgttca ggagaatgcc 300
 ctactggca ccacgaccga gatggacgat gcctccgagg ccaacatgga gctgctcgtc 360
 caggtgggtg agaacctcct gaagaagccc gtctccgaag acaatcccga gacctatgag 420
 gaagcgctca agcgctttgc caagctgctc tctgatagga agaaactccg cgctaacaag 480
 gccagctacg gaccaggaca gctcggcgag atggtgaccg tgctctccat cgacggcggt 540
 ggcatcaggg gcatcatccc ggccaccatc ctggagttcc tggagggcca actccaggag 600
 atggacaaca acgccgacgc ccgcctggcc gactacttcg acgtgatcgg tggcaccagc 660
 accggcggtc tcttgaccgc catgatctcc actccgaacg agaacaaccg ccccttcgcc 720

gctgcgaagg agatcgcccc gttctacttc gaacacggcc ctcagatttt caaccctcgc 780
 ggtcaaatcc tgggccccaa gtacgacggc aagtacctta tgcaagtgct tcaggagaag 840
 ctgggcgaga ctaggggtgca ccaggcgctg accgaggctcgc tcattctccag cttcgacatc 900
 aagaccaaca agccagtcac cttcaccaag tccaacctgg ccaacagccc ggagctggac 960
 gctaagatgt acgacatctc ctactccact gctgccgctc ccacgtactt ccctccgcac 1020
 tacttcgtca ccaacaccag caacggcgac gactacgagt tcaaccttgt tgacgggtgcg 1080
 gtggctacgg tggcggaccc ggcgctcctg tccatcagcg tcgccacgcg cctggcccag 1140
 aaggatccag ccttcgctag cattagg 1167

<210> 271
 <211> 389
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic polypeptide

<400> 271

Met	Ala	Thr	Thr	Lys	Ser	Phe	Leu	Ile	Leu	Ile	Phe	Met	Ile	Leu	Ala
1				5					10					15	
Thr	Thr	Ser	Ser	Thr	Phe	Ala	Ser	Leu	Asn	Tyr	Lys	Lys	Met	Leu	Leu
			20					25					30		
Leu	Ser	Leu	Gly	Thr	Gly	Thr	Thr	Ser	Glu	Phe	Asp	Lys	Thr	Tyr	Thr
		35					40					45			
Ala	Lys	Glu	Ala	Ala	Thr	Trp	Thr	Ala	Val	His	Trp	Met	Leu	Val	Ile
	50					55					60				
Gln	Lys	Met	Thr	Asp	Ala	Ser	Ser	Tyr	Met	Thr	Asp	Tyr	Tyr	Leu	
65				70				75						80	
Ser	Thr	Ala	Phe	Gln	Ala	Leu	Asp	Ser	Lys	Asn	Asn	Tyr	Leu	Arg	Val
				85				90						95	
Gln	Glu	Asn	Ala	Leu	Thr	Gly	Thr	Thr	Thr	Glu	Met	Asp	Asp	Ala	Ser
			100				105						110		
Glu	Ala	Asn	Met	Glu	Leu	Leu	Val	Gln	Val	Gly	Glu	Asn	Leu	Leu	Lys
	115						120					125			
Lys	Pro	Val	Ser	Glu	Asp	Asn	Pro	Glu	Thr	Tyr	Glu	Glu	Ala	Leu	Lys
	130					135					140				
Arg	Phe	Ala	Lys	Leu	Leu	Ser	Asp	Arg	Lys	Lys	Leu	Arg	Ala	Asn	Lys
145				150						155				160	
Ala	Ser	Tyr	Gly	Pro	Gly	Gln	Leu	Gly	Glu	Met	Val	Thr	Val	Leu	Ser
				165				170						175	
Ile	Asp	Gly	Gly	Gly	Ile	Arg	Gly	Ile	Ile	Pro	Ala	Thr	Ile	Leu	Glu

ggtctagagg aattctcatt acttgtcgaa ctccgaggt

39

<210> 274

<211> 1167

<212> DNA

<213> Artificial

<220>

<223> Synthetic construct

<400> 274

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accttcgcca cctacactgc caaggaggcc gctacctgga ccgcctgcca ttggatgctg 120
gtcatccaga agatgacgga cgccgcttcc agctacatga ccgactacta cctctccact 180
gcgttccagg cgcttgactc caagaacaac tacctccgtg ttcaggagaa tgccctcact 240
ggcaccacga ccgagatgga cgatgcctcc gaggccaaca tggagctgct cgtccagggtg 300
ggtgagaacc tcttgaagaa gcccgctctcc gaagacaatc ccgagaccta tgaggaagcg 360
ctcaagcgct ttgccaagct gctctctgat aggaagaaac tccgcgctaa caaggccagc 420
tacggaccag gacagctcgg cgagatgggt accgtgctct ccatcgacgg cgggtggcatc 480
agggggcatca tcccggccac catcctggag ttcctggagg gccaaactcca ggagatggac 540
aacaacgccg acgcccgcct ggccgactac ttcgacgtga tcggtggcac cagcaccggc 600
ggtctcctga ccgccatgat ctccactccg aacgagaaca accgcccctt cgccgctgcg 660
aaggagatcg tcccgttcta cttcgaacac ggccctcaga ttttcaaccc ctccgggtcaa 720
atcctggggc ccaagtacga cggcaagtac cttatgcaag tgcttcagga gaagctgggc 780
gagactaggg tgcaccaggc gctgaccgag gtcgtcatct ccagcttcga catcaagacc 840
aacaagccag tcattcttcac caagtccaac ctggccaaca gcccgagct ggacgctaag 900
atgtacgaca tctcctactc cactgctgcc gctcccacgt acttcctcc gcactacttc 960
gtcaccaaca ccagcaacgg cgacgagtac gagttcaacc ttgttgacgg tgcggtggct 1020
acggtggcgg acccggcgct cctgtccatc agcgtcgcca cgcgctggc ccagaaggat 1080
ccagccttcg ctagcattag gaggctcaac tacaagaaga tgctgctgct cagcctgggc 1140
actggcacga cctccgagtt cgacaag 1167

<210> 275

<211> 389

<212> PRT

<213> Artificial

<220>

<223> Synthetic polypeptide

<400> 275

Met Ala Thr Thr Lys Ser Phe Leu Ile Leu Ile Phe Met Ile Leu Ala
 1 5 10 15
 Thr Thr Ser Ser Thr Phe Ala Thr Tyr Thr Ala Lys Glu Ala Ala Thr
 20 25 30
 Trp Thr Ala Val His Trp Met Leu Val Ile Gln Lys Met Thr Asp Ala
 35 40 45
 Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser Thr Ala Phe Gln Ala
 50 55 60
 Leu Asp Ser Lys Asn Asn Tyr Leu Arg Val Gln Glu Asn Ala Leu Thr
 65 70 75 80
 Gly Thr Thr Thr Glu Met Asp Asp Ala Ser Glu Ala Asn Met Glu Leu
 85 90 95
 Leu Val Gln Val Gly Glu Asn Leu Leu Lys Lys Pro Val Ser Glu Asp
 100 105 110
 Asn Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg Phe Ala Lys Leu Leu
 115 120 125
 Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala Ser Tyr Gly Pro Gly
 130 135 140
 Gln Leu Gly Glu Met Val Thr Val Leu Ser Ile Asp Gly Gly Gly Ile
 145 150 155 160
 Arg Gly Ile Ile Pro Ala Thr Ile Leu Glu Phe Leu Glu Gly Gln Leu
 165 170 175
 Gln Glu Met Asp Asn Asn Ala Asp Ala Arg Leu Ala Asp Tyr Phe Asp
 180 185 190
 Val Ile Gly Gly Thr Ser Thr Gly Gly Leu Leu Thr Ala Met Ile Ser
 195 200 205
 Thr Pro Asn Glu Asn Asn Arg Pro Phe Ala Ala Ala Lys Glu Ile Val
 210 215 220
 Pro Phe Tyr Phe Glu His Gly Pro Gln Ile Phe Asn Pro Ser Gly Gln
 225 230 235 240
 Ile Leu Gly Pro Lys Tyr Asp Gly Lys Tyr Leu Met Gln Val Leu Gln
 245 250 255
 Glu Lys Leu Gly Glu Thr Arg Val His Gln Ala Leu Thr Glu Val Val
 260 265 270
 Ile Ser Ser Phe Asp Ile Lys Thr Asn Lys Pro Val Ile Phe Thr Lys
 275 280 285
 Ser Asn Leu Ala Asn Ser Pro Glu Leu Asp Ala Lys Met Tyr Asp Ile
 290 295 300
 Ser Tyr Ser Thr Ala Ala Ala Pro Thr Tyr Phe Pro Pro His Tyr Phe
 305 310 315 320
 Val Thr Asn Thr Ser Asn Gly Asp Glu Tyr Glu Phe Asn Leu Val Asp

	325		330		335										
Gly	Ala	Val	Ala	Thr	Val	Ala	Asp	Pro	Ala	Leu	Leu	Ser	Ile	Ser	Val
		340					345						350		
Ala	Thr	Arg	Leu	Ala	Gln	Lys	Asp	Pro	Ala	Phe	Ala	Ser	Ile	Arg	Ser
		355					360					365			
Leu	Asn	Tyr	Lys	Lys	Met	Leu	Leu	Leu	Ser	Leu	Gly	Thr	Gly	Thr	Thr
	370					375					380				
Ser	Glu	Phe	Asp	Lys											
385															
<210>	276														
<211>	7														
<212>	PRT														
<213>	Artificial														
<220>															
<223>	Synthetic polypeptide														
<400>	276														
Gly	Gly	Gly	Ser	Gly	Gly	Gly									
1				5											
<210>	277														
<211>	3														
<212>	PRT														
<213>	Artificial														
<220>															
<223>	Synthetic polypeptide														
<400>	277														
Gly	Pro	Gly													
1															
<210>	278														
<211>	386														
<212>	PRT														
<213>	Solanum tuberosum														
<400>	278														
Met	Ala	Thr	Thr	Lys	Ser	Phe	Leu	Ile	Leu	Phe	Phe	Met	Ile	Leu	Ala
1				5					10					15	
Thr	Thr	Ser	Ser	Thr	Cys	Ala	Lys	Leu	Glu	Glu	Met	Val	Thr	Val	Leu
			20					25					30		
Ser	Ile	Asp	Gly	Gly	Gly	Ile	Lys	Gly	Ile	Ile	Pro	Ala	Ile	Ile	Leu
		35					40					45			
Glu	Phe	Leu	Glu	Gly	Gln	Leu	Gln	Glu	Val	Asp	Asn	Asn	Lys	Asp	Ala
	50					55					60				
Arg	Leu	Ala	Asp	Tyr	Phe	Asp	Val	Ile	Gly	Gly	Thr	Ser	Thr	Gly	Gly
65					70					75					80

Leu Leu Thr Ala Met Ile Thr Thr Pro Asn Glu Asn Asn Arg Pro Phe
 85 90 95

Ala Ala Ala Lys Asp Ile Val Pro Phe Tyr Phe Glu His Gly Pro His
 100 105 110

Ile Phe Asn Tyr Ser Gly Ser Ile Ile Gly Pro Met Tyr Asp Gly Lys
 115 120 125

Tyr Leu Leu Gln Val Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His
 130 135 140

Gln Ala Leu Thr Glu Val Ala Ile Ser Ser Phe Asp Ile Lys Thr Asn
 145 150 155 160

Lys Pro Val Ile Phe Thr Lys Ser Asn Leu Ala Lys Ser Pro Glu Leu
 165 170 175

Asp Ala Lys Met Tyr Asp Ile Cys Tyr Ser Thr Ala Ala Ala Pro Ile
 180 185 190

Tyr Phe Pro Pro His Tyr Phe Ile Thr His Thr Ser Asn Gly Asp Ile
 195 200 205

Tyr Glu Phe Asn Leu Val Asp Gly Gly Val Ala Thr Val Gly Asp Pro
 210 215 220

Ala Leu Leu Ser Leu Ser Val Ala Thr Arg Leu Ala Gln Glu Asp Pro
 225 230 235 240

Ala Phe Ser Ser Ile Lys Ser Leu Asp Tyr Lys Gln Met Leu Leu Leu
 245 250 255

Ser Leu Gly Thr Gly Thr Asn Ser Glu Phe Asp Lys Thr Tyr Thr Ala
 260 265 270

Gln Glu Ala Ala Lys Trp Gly Pro Leu Arg Trp Met Leu Ala Ile Gln
 275 280 285

Gln Met Thr Asn Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Ile Ser
 290 295 300

Thr Val Phe Gln Ala Arg His Ser Gln Asn Asn Tyr Leu Arg Val Gln
 305 310 315 320

Glu Asn Ala Leu Thr Gly Thr Thr Thr Glu Met Asp Asp Ala Ser Glu
 325 330 335

Ala Asn Met Glu Leu Leu Val Gln Val Gly Glu Thr Leu Leu Lys Lys
 340 345 350

Pro Val Ser Lys Asp Ser Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg
 355 360 365

Phe Ala Lys Leu Leu Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala
 370 375 380

Ser Tyr
 385

<210> 279
 <211> 386
 <212> PRT
 <213> Solanum tuberosum

<400> 279

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Met Ala Thr Thr Lys Ser Val Leu Val Leu Phe Phe Met Ile Leu Ala
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Thr Thr Ser Ser Thr Cys Ala Thr Leu Gly Glu Met Val Thr Val Leu
          20          25          30

Ser Ile Asp Gly Gly Gly Ile Lys Gly Ile Ile Pro Ala Thr Ile Leu
          35          40          45

Glu Phe Leu Glu Gly Gln Leu Gln Glu Val Asp Asn Asn Lys Asp Ala
          50          55          60

Arg Leu Ala Asp Tyr Phe Asp Val Ile Gly Gly Thr Ser Thr Gly Gly
65          70          75          80

Leu Leu Thr Ala Met Ile Thr Thr Pro Asn Glu Asn Asn Arg Pro Phe
          85          90          95

Ala Ala Ala Lys Asp Ile Val Pro Phe Tyr Phe Glu His Gly Pro His
          100          105          110

Ile Phe Asn Ser Ser Gly Ser Ile Phe Gly Pro Met Tyr Asp Gly Lys
          115          120          125

Tyr Phe Leu Gln Val Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His
          130          135          140

Gln Ala Leu Thr Glu Val Ala Ile Ser Ser Phe Asp Ile Lys Thr Asn
145          150          155          160

Lys Pro Val Ile Phe Thr Lys Ser Asn Leu Ala Lys Ser Pro Glu Leu
          165          170          175

Asp Ala Lys Met Asn Asp Ile Cys Tyr Ser Thr Ala Ala Ala Pro Thr
          180          185          190

Tyr Phe Pro Pro His Tyr Phe Val Thr His Thr Ser Asn Gly Asp Lys
          195          200          205

Tyr Glu Phe Asn Leu Val Asp Gly Ala Val Ala Thr Val Gly Asp Pro
          210          215          220

Ala Leu Leu Ser Leu Ser Val Arg Thr Lys Leu Ala Gln Val Asp Pro
225          230          235          240

Lys Phe Ala Ser Ile Lys Ser Leu Asn Tyr Asn Glu Met Leu Leu Leu
          245          250          255

Ser Leu Gly Thr Gly Thr Asn Ser Glu Phe Asp Lys Thr Tyr Thr Ala
          260          265          270

Glu Glu Ala Ala Lys Trp Gly Pro Leu Arg Trp Ile Leu Ala Ile Gln
          275          280          285

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Gln Met Thr Asn Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser
 290 295 300
 Thr Val Phe Gln Ala Arg His Ser Gln Asn Asn Tyr Leu Arg Val Gln
 305 310 315 320
 Glu Asn Ala Leu Thr Gly Thr Thr Thr Glu Met Asp Asp Ala Ser Glu
 325 330 335
 Ala Asn Met Glu Leu Leu Val Gln Val Gly Glu Lys Leu Leu Lys Lys
 340 345 350
 Pro Val Ser Lys Asp Ser Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg
 355 360 365
 Phe Ala Lys Leu Leu Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala
 370 375 380
 Ser Tyr
 385
 <210> 280
 <211> 365
 <212> PRT
 <213> Solanum tuberosum
 <400> 280
 Met Ala Leu Glu Glu Met Val Ala Val Leu Ser Ile Asp Gly Gly Gly
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 Ile Lys Gly Ile Ile Pro Gly Thr Ile Leu Glu Phe Leu Glu Gly Gln
 20 25 30
 Leu Gln Lys Met Asp Asn Asn Ala Asp Ala Arg Leu Ala Asp Tyr Phe
 35 40 45
 Asp Val Ile Gly Gly Thr Ser Thr Gly Gly Leu Leu Thr Ala Met Ile
 50 55 60
 Thr Thr Pro Asn Glu Asn Asn Arg Pro Phe Ala Ala Ala Asn Glu Ile
 65 70 75 80
 Val Pro Phe Tyr Phe Glu His Gly Pro His Ile Phe Asn Ser Arg Tyr
 85 90 95
 Trp Pro Ile Phe Trp Pro Lys Tyr Asp Gly Lys Tyr Leu Met Gln Val
 100 105 110
 Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His Gln Ala Leu Thr Glu
 115 120 125
 Val Ala Ile Ser Ser Phe Asp Ile Lys Thr Asn Lys Pro Val Ile Phe
 130 135 140
 Thr Lys Ser Asn Leu Ala Lys Ser Pro Glu Leu Asp Ala Lys Thr Tyr
 145 150 155 160
 Asp Ile Cys Tyr Ser Thr Ala Ala Ala Pro Thr Tyr Phe Pro Pro His
 165 170 175

Tyr Phe Ala Thr Asn Thr Ile Asn Gly Asp Lys Tyr Glu Phe Asn Leu
 180 185 190
 Val Asp Gly Ala Val Ala Thr Val Ala Asp Pro Ala Leu Leu Ser Val
 195 200 205
 Ser Val Ala Thr Arg Arg Ala Gln Glu Asp Pro Ala Phe Ala Ser Ile
 210 215 220
 Arg Ser Leu Asn Tyr Lys Lys Met Leu Leu Leu Ser Leu Gly Thr Gly
 225 230 235 240
 Thr Thr Ser Glu Phe Asp Lys Thr His Thr Ala Glu Glu Thr Ala Lys
 245 250 255
 Trp Gly Ala Leu Gln Trp Met Leu Val Ile Gln Gln Met Thr Glu Ala
 260 265 270
 Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser Thr Val Phe Gln Asp
 275 280 285
 Leu His Ser Gln Asn Asn Tyr Leu Arg Val Gln Glu Asn Ala Leu Thr
 290 295 300
 Gly Thr Thr Thr Lys Ala Asp Asp Ala Ser Glu Ala Asn Met Glu Leu
 305 310 315 320
 Leu Ala Gln Val Gly Glu Asn Leu Leu Lys Lys Pro Val Ser Lys Asp
 325 330 335
 Asn Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg Phe Ala Lys Leu Leu
 340 345 350
 Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala Ser Tyr
 355 360 365
 <210> 281
 <211> 364
 <212> PRT
 <213> Solanum tuberosum
 <400> 281
 Pro Trp Leu Glu Glu Met Val Thr Val Leu Ser Ile Asp Gly Gly Gly
 1 5 10 15
 Ile Lys Gly Ile Ile Pro Ala Ile Ile Leu Glu Phe Leu Glu Gly Gln
 20 25 30
 Leu Gln Glu Val Asp Asn Asn Lys Asp Ala Arg Leu Ala Asp Tyr Phe
 35 40 45
 Asp Val Ile Gly Gly Thr Ser Thr Gly Gly Leu Leu Thr Ala Met Ile
 50 55 60
 Thr Thr Pro Asn Glu Asn Asn Arg Pro Phe Ala Ala Ala Lys Asp Ile
 65 70 75 80
 Val Pro Phe Tyr Phe Glu His Gly Pro His Ile Phe Asn Tyr Ser Gly
 85 90 95

Ser Ile Leu Gly Pro Met Tyr Asp Gly Lys Tyr Leu Leu Gln Val Leu
 100 105 110
 Gln Glu Lys Leu Gly Glu Thr Arg Val His Gln Ala Leu Thr Glu Val
 115 120 125
 Ala Ile Ser Ser Phe Asp Ile Lys Thr Asn Lys Pro Val Ile Phe Thr
 130 135 140
 Lys Ser Asn Leu Ala Lys Ser Pro Glu Leu Asp Ala Lys Met Tyr Asp
 145 150 155 160
 Ile Cys Tyr Ser Thr Ala Ala Ala Pro Ile Tyr Phe Pro Pro His His
 165 170 175
 Phe Val Thr His Thr Ser Asn Gly Ala Arg Tyr Glu Phe Asn Leu Val
 180 185 190
 Asp Gly Ala Val Ala Thr Val Gly Asp Pro Ala Leu Leu Ser Leu Ser
 195 200 205
 Val Ala Thr Arg Leu Ala Gln Glu Asp Pro Ala Phe Ser Ser Ile Lys
 210 215 220
 Ser Leu Asp Tyr Lys Gln Met Leu Leu Leu Ser Leu Gly Thr Gly Thr
 225 230 235 240
 Asn Ser Glu Phe Asp Lys Thr Tyr Thr Ala Glu Glu Ala Ala Lys Trp
 245 250 255
 Gly Pro Leu Arg Trp Met Leu Ala Ile Gln Gln Met Thr Asn Ala Ala
 260 265 270
 Ser Phe Tyr Met Thr Asp Tyr Tyr Ile Ser Thr Val Phe Gln Ala Arg
 275 280 285
 His Ser Gln Asn Asn Tyr Leu Arg Val Gln Glu Asn Ala Leu Asn Gly
 290 295 300
 Thr Thr Thr Glu Met Asp Asp Ala Ser Glu Ala Asn Met Glu Leu Leu
 305 310 315 320
 Val Gln Val Gly Glu Thr Leu Leu Lys Lys Pro Val Ser Arg Asp Ser
 325 330 335
 Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg Phe Ala Lys Leu Leu Ser
 340 345 350
 Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala Ser Tyr
 355 360
 <210> 282
 <211> 386
 <212> PRT
 <213> Solanum tuberosum
 <400> 282
 Met Ala Thr Thr Lys Ser Phe Leu Ile Leu Phe Phe Met Ile Leu Ala
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Thr Thr Ser Ser Thr Cys Ala Lys Leu Glu Glu Met Val Thr Val Leu
 20 25 30
 Ser Ile Asp Gly Gly Gly Ile Lys Gly Ile Ile Pro Ala Ile Ile Leu
 35 40 45
 Glu Phe Leu Glu Gly Gln Leu Gln Glu Val Asp Asn Asn Lys Asp Ala
 50 55 60
 Arg Leu Ala Asp Tyr Phe Asp Val Ile Gly Gly Thr Ser Thr Gly Gly
 65 70 75 80
 Leu Leu Thr Ala Met Ile Thr Thr Pro Asn Glu Asn Asn Arg Pro Phe
 85 90 95
 Ala Ala Ala Lys Asp Ile Val Pro Phe Tyr Phe Glu His Gly Pro His
 100 105 110
 Ile Phe Asn Tyr Ser Gly Ser Ile Leu Gly Pro Met Tyr Asp Gly Lys
 115 120 125
 Tyr Leu Leu Gln Val Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His
 130 135 140
 Gln Ala Leu Thr Glu Val Ala Ile Ser Ser Phe Asp Ile Lys Thr Asn
 145 150 155 160
 Lys Pro Val Ile Phe Thr Lys Ser Asn Leu Ala Lys Ser Pro Glu Leu
 165 170 175
 Asp Ala Lys Met Tyr Asp Ile Cys Tyr Ser Thr Ala Ala Ala Pro Ile
 180 185 190
 Tyr Phe Pro Pro His His Phe Val Thr His Thr Ser Asn Gly Ala Arg
 195 200 205
 Tyr Glu Phe Asn Leu Val Asp Gly Ala Val Ala Thr Val Gly Asp Pro
 210 215 220
 Ala Leu Leu Ser Leu Ser Val Ala Thr Arg Leu Ala Gln Glu Asp Pro
 225 230 235 240
 Ala Phe Ser Ser Ile Lys Ser Leu Asp Tyr Lys Gln Met Leu Leu Leu
 245 250 255
 Ser Leu Gly Thr Gly Thr Asn Ser Glu Phe Asp Lys Thr Tyr Thr Ala
 260 265 270
 Glu Glu Ala Ala Lys Trp Gly Pro Leu Arg Trp Met Leu Ala Ile Gln
 275 280 285
 Gln Met Thr Asn Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Ile Ser
 290 295 300
 Thr Val Phe Gln Ala Arg His Ser Gln Asn Asn Tyr Leu Arg Val Gln
 305 310 315 320
 Glu Asn Ala Leu Asn Gly Thr Thr Thr Glu Met Asp Asp Ala Ser Glu
 325 330 335
 Ala Asn Met Glu Leu Leu Val Gln Val Gly Ala Thr Leu Leu Lys Lys

tatgacataa gttattccac agcagcagct ccaacatatt ttcttccgca ttactttgtt 600
 actaatacta gtaatggaga tgaatatgag ttcaatcttg ttgatgggtgc tgttgctact 660
 gttgctgatac cggcggttatt atccattagc gttgcaacga gacttgcaca aaaggatcca 720
 gcatttgctt caattagggtc attgaattac aaaaaaatgc tgttgctctc attaggcact 780
 ggcactactt cagagtttga taaaacatat acagcaaaag aggcagctac ctggactgct 840
 gtacattgga tgtagttat acagaaaatg actgatgcag caagttctta catgactgat 900
 tattaccttt ctactgcttt tcaagctctt gattcaaaaa acaattacct cagggttcaa 960
 gaaaatgcat taacaggcac aactactgaa atggatgatg cttctgaggc taatatggaa 1020
 ttattagtac aagttggtga aaacttattg aagaaaccag tttccgaaga caatcctgaa 1080
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 gcaaacaaag cttcttatta a 1161

<210> 286

<211> 386

<212> PRT

<213> Solanum tuberosum

<400> 286

Met Ala Thr Thr Lys Ser Phe Leu Ile Leu Ile Phe Met Ile Leu Ala
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 Thr Thr Ser Ser Thr Phe Ala Gln Leu Gly Glu Met Val Thr Val Leu
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 Ser Ile Asp Gly Gly Gly Ile Arg Gly Ile Ile Pro Ala Thr Ile Leu
 35 40 45
 Glu Phe Leu Glu Gly Gln Leu Gln Glu Met Asp Asn Asn Ala Asp Ala
 50 55 60
 Arg Leu Ala Asp Tyr Phe Asp Val Ile Gly Gly Thr Ser Thr Gly Gly
 65 70 75 80
 Leu Leu Thr Ala Met Ile Ser Thr Pro Asn Glu Asn Asn Arg Pro Phe
 85 90 95
 Ala Ala Ala Lys Glu Ile Val Pro Phe Tyr Phe Glu His Gly Pro Gln
 100 105 110
 Ile Phe Asn Pro Ser Gly Gln Ile Leu Gly Pro Lys Tyr Asp Gly Lys
 115 120 125
 Tyr Leu Met Gln Val Leu Gln Glu Lys Leu Gly Glu Thr Arg Val His
 130 135 140
 Gln Ala Leu Thr Glu Val Val Ile Ser Ser Phe Asp Ile Lys Thr Asn
 145 150 155 160
 Lys Pro Val Ile Phe Thr Lys Ser Asn Leu Ala Asn Ser Pro Glu Leu
 165 170 175

Asp Ala Lys Met Tyr Asp Ile Ser Tyr Ser Thr Ala Ala Ala Pro Thr
 180 185 190
 Tyr Phe Pro Pro His Tyr Phe Val Thr Asn Thr Ser Asn Gly Asp Glu
 195 200 205
 Tyr Glu Phe Asn Leu Val Asp Gly Ala Val Ala Thr Val Ala Asp Pro
 210 215 220
 Ala Leu Leu Ser Ile Ser Val Ala Thr Arg Leu Ala Gln Lys Asp Pro
 225 230 235 240
 Ala Phe Ala Ser Ile Arg Ser Leu Asn Tyr Lys Lys Met Leu Leu Leu
 245 250 255
 Ser Leu Gly Thr Gly Thr Thr Ser Glu Phe Asp Lys Thr Tyr Thr Ala
 260 265 270
 Lys Glu Ala Ala Thr Trp Thr Ala Val His Trp Met Leu Val Ile Gln
 275 280 285
 Lys Met Thr Asp Ala Ala Ser Ser Tyr Met Thr Asp Tyr Tyr Leu Ser
 290 295 300
 Thr Ala Phe Gln Ala Leu Asp Ser Lys Asn Asn Tyr Leu Arg Val Gln
 305 310 315 320
 Glu Asn Ala Leu Thr Gly Thr Thr Thr Glu Met Asp Asp Ala Ser Glu
 325 330 335
 Ala Asn Met Glu Leu Leu Val Gln Val Gly Glu Asn Leu Leu Lys Lys
 340 345 350
 Pro Val Ser Glu Asp Asn Pro Glu Thr Tyr Glu Glu Ala Leu Lys Arg
 355 360 365
 Phe Ala Lys Leu Leu Ser Asp Arg Lys Lys Leu Arg Ala Asn Lys Ala
 370 375 380
 Ser Tyr
 385

<210> 287
 <211> 408
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic polypeptide

<400> 287

Met Lys Ser Lys Met Ala Met Leu Leu Leu Leu Phe Cys Val Leu Ser
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 Asn Gln Leu Val Ala Ala Phe Ser Thr Gln Ala Lys Ala Ser Lys Asp
 20 25 30
 Gly Asn Leu Val Thr Val Leu Ala Ile Asp Gly Gly Gly Ile Arg Gly
 35 40 45

Ile Ile Pro Gly Val Ile Leu Lys Gln Leu Glu Ala Thr Leu Gln Arg
 50 55 60
 Trp Asp Ser Ser Ala Arg Leu Ala Glu Tyr Phe Asp Val Val Ala Gly
 65 70 75 80
 Thr Ser Thr Gly Gly Ile Ile Thr Ala Ile Leu Thr Ala Pro Asp Pro
 85 90 95
 Gln Asn Lys Asp Arg Pro Leu Tyr Ala Ala Glu Glu Ile Ile Asp Phe
 100 105 110
 Tyr Ile Glu His Gly Pro Ser Ile Phe Asn Lys Ser Thr Ala Cys Ser
 115 120 125
 Leu Pro Gly Ile Phe Cys Pro Lys Tyr Asp Gly Lys Tyr Leu Gln Glu
 130 135 140
 Ile Ile Ser Gln Lys Leu Asn Glu Thr Leu Leu Asp Gln Thr Thr Thr
 145 150 155 160
 Asn Val Val Ile Pro Ser Phe Asp Ile Lys Leu Leu Arg Pro Thr Ile
 165 170 175
 Phe Ser Thr Phe Lys Leu Glu Glu Val Pro Glu Leu Asn Val Lys Leu
 180 185 190
 Ser Asp Val Cys Met Gly Thr Ser Ala Ala Pro Ile Val Phe Pro Pro
 195 200 205
 Tyr Tyr Phe Lys His Gly Asp Thr Glu Phe Asn Leu Val Asp Gly Ala
 210 215 220
 Ile Ile Ala Asp Ile Pro Ala Pro Val Ala Leu Ser Glu Val Leu Gln
 225 230 235 240
 Gln Glu Lys Tyr Lys Asn Lys Glu Ile Leu Leu Leu Ser Ile Gly Thr
 245 250 255
 Gly Val Val Lys Pro Gly Glu Gly Tyr Ser Ala Asn Arg Thr Trp Thr
 260 265 270
 Ile Phe Asp Trp Ser Ser Glu Thr Leu Ile Gly Leu Met Gly His Gly
 275 280 285
 Thr Arg Ala Met Ser Asp Tyr Tyr Val Gly Ser His Phe Lys Ala Leu
 290 295 300
 Gln Pro Gln Asn Asn Tyr Leu Arg Ile Gln Glu Tyr Asp Leu Asp Pro
 305 310 315 320
 Ala Leu Glu Ser Ile Asp Asp Ala Ser Thr Glu Asn Met Glu Asn Leu
 325 330 335
 Glu Lys Val Gly Gln Ser Leu Leu Asn Glu Pro Val Lys Arg Met Asn
 340 345 350
 Leu Asn Thr Phe Val Val Glu Glu Thr Gly Glu Gly Thr Asn Ala Glu
 355 360 365

Ala Leu Asp Arg Leu Ala Gln Ile Leu Tyr Glu Glu Lys Ile Thr Arg
 370 375 380
 Gly Leu Gly Lys Ile Ser Leu Glu Val Asp Asn Ile Asp Pro Tyr Thr
 385 390 395 400
 Glu Arg Val Arg Lys Leu Leu Phe
 405
 <210> 288
 <211> 410
 <212> PRT
 <213> Zea mays
 <400> 288
 Met Gly Ser Ile Gly Arg Gly Thr Ala Asn Cys Ala Thr Val Pro Gln
 1 5 10 15
 Pro Pro Pro Ser Thr Gly Lys Leu Ile Thr Ile Leu Ser Ile Asp Gly
 20 25 30
 Gly Gly Ile Arg Gly Leu Ile Pro Ala Thr Ile Ile Ala Tyr Leu Glu
 35 40 45
 Ala Lys Leu Gln Glu Leu Asp Gly Pro Asp Ala Arg Ile Ala Asp Tyr
 50 55 60
 Phe Asp Val Ile Ala Gly Thr Ser Thr Gly Ala Leu Leu Ala Ser Met
 65 70 75 80
 Leu Ala Ala Pro Asp Glu Asn Asn Arg Pro Leu Phe Ala Ala Lys Asp
 85 90 95
 Leu Thr Thr Phe Tyr Leu Glu Asn Gly Pro Lys Ile Phe Pro Gln Lys
 100 105 110
 Lys Ala Gly Leu Leu Thr Pro Leu Arg Asn Leu Leu Gly Leu Val Arg
 115 120 125
 Gly Pro Lys Tyr Asp Gly Val Phe Leu His Asp Lys Ile Lys Ser Leu
 130 135 140
 Thr His Asp Val Arg Val Ala Asp Thr Val Thr Asn Val Ile Val Pro
 145 150 155 160
 Ala Phe Asp Val Lys Tyr Leu Gln Pro Ile Ile Phe Ser Thr Tyr Glu
 165 170 175
 Ala Lys Thr Asp Thr Leu Lys Asn Ala His Leu Ser Asp Ile Cys Ile
 180 185 190
 Ser Thr Ser Ala Ala Pro Thr Tyr Phe Pro Ala His Phe Phe Lys Thr
 195 200 205
 Glu Ala Thr Asp Gly Arg Pro Pro Arg Glu Tyr His Leu Val Asp Gly
 210 215 220
 Gly Val Ala Ala Asn Asn Pro Thr Met Val Ala Met Ser Met Leu Thr
 225 230 235 240

Lys Glu Val His Arg Arg Asn Pro Asn Phe Asn Ala Gly Ser Pro Thr
 245 250 255
 Glu Tyr Thr Asn Tyr Leu Ile Ile Ser Val Gly Thr Gly Ser Ala Lys
 260 265 270
 Gln Ala Glu Lys Tyr Thr Ala Glu Gln Cys Ala Lys Trp Gly Leu Ile
 275 280 285
 Gln Trp Leu Tyr Asn Gly Gly Phe Thr Pro Ile Ile Asp Ile Phe Ser
 290 295 300
 His Ala Ser Ser Asp Met Val Asp Ile His Ala Ser Ile Leu Phe Gln
 305 310 315 320
 Ala Leu His Cys Glu Lys Lys Tyr Leu Arg Ile Gln Asp Asp Thr Leu
 325 330 335
 Thr Gly Asn Ala Ser Ser Val Asp Ile Ala Thr Lys Glu Asn Met Glu
 340 345 350
 Ser Leu Ile Ser Ile Gly Gln Glu Leu Leu Lys Lys Pro Val Ala Arg
 355 360 365
 Val Asn Ile Asp Thr Gly Val Tyr Glu Ser Cys Asp Gly Glu Gly Thr
 370 375 380
 Asn Ala Gln Ser Leu Ala Asp Phe Ala Lys Gln Leu Ser Asp Glu Arg
 385 390 395 400
 Lys Leu Arg Lys Ser Asn Leu Asn Ser Asn
 405 410

 <210> 289
 <211> 508
 <212> PRT
 <213> Zea mays

 <400> 289

 Arg Pro Thr Arg Pro Arg His Pro Arg Asn Thr Gln Lys Arg Gly Ala
 1 5 10 15
 Leu Leu Val Gly Trp Ile Leu Phe Ser Leu Ala Ala Ser Pro Val Lys
 20 25 30
 Phe Gln Thr His Met Gly Ser Ile Gly Arg Gly Thr Ala Asn Cys Ala
 35 40 45
 Thr Val Pro Gln Pro Pro Pro Ser Thr Gly Lys Leu Ile Thr Ile Leu
 50 55 60
 Ser Ile Asp Gly Gly Gly Ile Arg Gly Leu Ile Pro Ala Thr Ile Ile
 65 70 75 80
 Ala Tyr Leu Glu Ala Lys Leu Gln Glu Leu Asp Gly Pro Asp Ala Arg
 85 90 95
 Ile Ala Asp Tyr Phe Asp Val Ile Ala Gly Thr Ser Thr Gly Ala Leu
 100 105 110

Leu Ala Ser Met Leu Ala Ala Pro Asp Glu Asn Asn Arg Pro Leu Phe
 115 120 125
 Ala Ala Lys Asp Leu Thr Thr Phe Tyr Leu Glu Asn Gly Pro Lys Ile
 130 135 140
 Phe Pro Gln Lys Lys Ala Gly Leu Leu Thr Pro Leu Arg Asn Leu Leu
 145 150 155 160
 Gly Leu Val Arg Gly Pro Lys Tyr Asp Gly Val Phe Leu His Asp Lys
 165 170 175
 Ile Lys Ser Leu Thr His Asp Val Arg Val Ala Asp Thr Val Thr Asn
 180 185 190
 Val Ile Val Pro Ala Phe Asp Val Lys Tyr Leu Gln Pro Ile Ile Phe
 195 200 205
 Ser Thr Tyr Glu Ala Lys Thr Asp Ala Leu Lys Asn Ala His Leu Ser
 210 215 220
 Asp Ile Cys Ile Ser Thr Ser Ala Ala Pro Thr Tyr Phe Pro Ala His
 225 230 235 240
 Phe Phe Lys Thr Glu Ala Thr Asp Gly Arg Pro Pro Arg Glu Tyr His
 245 250 255
 Leu Val Asp Gly Gly Val Ala Ala Asn Asn Pro Thr Met Val Ala Met
 260 265 270
 Ser Met Leu Thr Lys Glu Val His Arg Arg Asn Pro Asn Phe Asn Ala
 275 280 285
 Gly Ser Pro Thr Glu Tyr Thr Asn Tyr Leu Ile Ile Ser Val Gly Thr
 290 295 300
 Gly Ser Ala Lys Gln Ala Glu Lys Tyr Thr Ala Glu Gln Cys Ala Lys
 305 310 315 320
 Trp Gly Leu Ile Gln Trp Leu Tyr Asn Gly Gly Phe Thr Pro Ile Ile
 325 330 335
 Asp Ile Phe Ser His Ala Ser Ser Asp Met Val Asp Ile His Ala Ser
 340 345 350
 Ile Leu Phe Gln Ala Leu His Cys Glu Lys Lys Tyr Leu Arg Ile Gln
 355 360 365
 Leu Tyr Tyr Ala Gly Tyr Phe Asp Trp Glu Arg Ile Val Arg Gly His
 370 375 380
 Arg His Gln Gly Glu His Gly Val Ser Asp Ile Asp Arg Pro Gly Ala
 385 390 395 400
 Ala Gln Glu Ala Ser Gly Glu Ser Glu His Arg His Arg Ala Val Arg
 405 410 415
 Val Leu Arg Arg Gly His Lys Cys Thr Val Ala Ser Leu Arg Gln Ala
 420 425 430
 Thr Leu Arg Ala Gln Ala Thr Gln Glu Gln Ser Gln Leu Gln Leu Ile

435		440		445
Asn Thr Ser Leu Ser His Ser Met Cys Ser Phe Arg Arg Phe Thr Val				
450		455		460
Ser Tyr Phe Phe Asn Phe Asn Ser Val Cys Val Leu Cys Val Leu Cys				
465		470		475
Val Tyr Gln Thr Phe Lys Phe Asn Gln Lys Lys Lys Lys Lys Lys Lys				
	485		490	495
Lys Lys Lys Lys Lys Lys Lys Lys Lys Arg Ala Ala				
	500		505	
<210>	290			
<211>	410			
<212>	PRT			
<213>	Zea mays			
<400>	290			
Met Gly Ser Ile Gly Arg Gly Thr Ala Asn Cys Ala Thr Val Pro Gln				
1	5		10	15
Pro Pro Pro Ser Thr Gly Lys Leu Ile Thr Ile Leu Ser Ile Asp Gly				
	20		25	30
Gly Gly Ile Arg Gly Leu Ile Pro Ala Thr Ile Ile Ala Tyr Leu Glu				
	35		40	45
Ala Lys Leu Gln Glu Leu Asp Gly Pro Asp Ala Arg Ile Ala Asp Tyr				
	50		55	60
Phe Asp Val Ile Ala Gly Thr Ser Thr Gly Ala Leu Leu Ala Ser Met				
65	70		75	80
Leu Ala Ala Pro Asp Glu Asn Asn Arg Pro Leu Phe Ala Ala Lys Asp				
	85		90	95
Leu Thr Thr Phe Tyr Leu Glu Asn Gly Pro Lys Ile Phe Pro Gln Lys				
	100		105	110
Lys Ala Gly Leu Leu Thr Pro Leu Arg Asn Leu Leu Gly Leu Val Arg				
	115		120	125
Gly Pro Lys Tyr Asp Gly Val Phe Leu His Asp Lys Ile Lys Ser Leu				
	130		135	140
Thr His Asp Val Arg Val Ala Asp Thr Val Thr Asn Val Ile Val Pro				
145	150		155	160
Ala Phe Asp Val Lys Ser Leu Gln Pro Ile Ile Phe Ser Thr Tyr Glu				
	165		170	175
Ala Lys Thr Asp Thr Leu Lys Asn Ala His Leu Ser Asp Ile Cys Ile				
	180		185	190
Ser Thr Ser Ala Ala Pro Thr Tyr Phe Pro Ala His Phe Phe Lys Thr				
	195		200	205

210	215	220
Gly Val Ala Ala Asn Asn Pro Thr Met Val Ala Met Ser Met Leu Thr 225 230 235 240		
Lys Glu Val His Arg Arg Asn Pro Asn Phe Asn Ala Gly Ser Pro Thr 245 250 255		
Glu Tyr Thr Asn Tyr Leu Ile Ile Ser Val Gly Thr Gly Ser Ala Lys 260 265 270		
Gln Ala Glu Lys Tyr Thr Ala Glu Gln Cys Ala Lys Trp Gly Leu Ile 275 280 285		
Gln Trp Leu Tyr Asn Gly Gly Phe Thr Pro Ile Ile Asp Ile Phe Ser 290 295 300		
His Ala Ser Ser Asp Met Val Asp Ile His Ala Ser Ile Leu Phe Gln 305 310 315 320		
Ala Leu His Cys Glu Lys Lys Tyr Leu Arg Ile Gln Asp Asp Thr Leu 325 330 335		
Thr Gly Asn Ala Ser Ser Val Asp Ile Ala Thr Lys Glu Asn Met Glu 340 345 350		
Ser Leu Ile Ser Ile Gly Gln Glu Leu Leu Asn Lys Pro Val Ala Arg 355 360 365		
Val Asn Ile Asp Thr Gly Leu Tyr Glu Ser Cys Glu Gly Glu Gly Thr 370 375 380		
Asn Ala Gln Ser Leu Ala Asp Phe Ala Lys Gln Leu Ser Asp Glu Arg 385 390 395 400		
Lys Leu Arg Lys Ser Asn Leu Asn Ser Asn 405 410		

<210> 291
 <211> 410
 <212> PRT
 <213> Zea mays

<400> 291

Met Gly Ser Ile Gly Arg Gly Thr Ala Asn Cys Ala Thr Val Pro Gln 1 5 10 15
Pro Pro Pro Ser Thr Gly Lys Leu Ile Thr Ile Leu Ser Ile Asp Gly 20 25 30
Gly Gly Ile Arg Gly Leu Ile Pro Ala Thr Ile Ile Ala Tyr Leu Glu 35 40 45
Ala Lys Leu Gln Glu Leu Asp Gly Pro Asp Ala Arg Ile Ala Asp Tyr 50 55 60
Phe Asp Val Ile Ala Gly Thr Ser Thr Gly Ala Leu Leu Ala Ser Met 65 70 75 80
Leu Ala Ala Pro Asp Glu Asn Asn Arg Pro Leu Phe Ala Ala Lys Asp

Leu Thr Thr Phe Tyr Leu Glu Asn Gly Pro Lys Ile Phe Pro Gln Lys
 100 105 110
 Lys Ala Gly Leu Leu Thr Pro Leu Arg Asn Leu Leu Gly Leu Val Arg
 115 120 125
 Gly Pro Lys Tyr Asp Gly Val Phe Leu His Asp Lys Ile Lys Ser Leu
 130 135 140
 Thr His Asp Val Arg Val Ala Asp Thr Val Thr Asn Val Ile Val Pro
 145 150 155 160
 Ala Phe Asp Val Lys Tyr Leu Gln Pro Ile Ile Phe Ser Thr Tyr Glu
 165 170 175
 Ala Lys Thr Asp Ala Leu Lys Asn Ala His Leu Ser Asp Ile Cys Ile
 180 185 190
 Ser Thr Ser Ala Ala Pro Thr Tyr Phe Pro Ala His Phe Phe Lys Thr
 195 200 205
 Glu Ala Thr Asp Gly Arg Pro Pro Arg Glu Tyr His Leu Val Asp Gly
 210 215 220
 Gly Val Ala Ala Asn Asn Pro Thr Met Val Ala Met Ser Met Leu Thr
 225 230 235 240
 Lys Glu Val His Arg Arg Asn Pro Asn Phe Asn Ala Gly Ser Pro Thr
 245 250 255
 Glu Tyr Thr Asn Tyr Leu Ile Ile Ser Val Gly Thr Gly Ser Ala Lys
 260 265 270
 Gln Ala Glu Lys Tyr Thr Ala Glu Gln Cys Ala Lys Trp Gly Leu Ile
 275 280 285
 Gln Trp Leu Tyr Asn Gly Gly Phe Thr Pro Ile Ile Asp Ile Phe Ser
 290 295 300
 His Ala Ser Ser Asp Met Val Asp Ile His Ala Ser Ile Leu Phe Gln
 305 310 315 320
 Ala Leu His Cys Glu Lys Lys Tyr Leu Arg Ile Gln Asp Asp Thr Leu
 325 330 335
 Thr Gly Asn Ala Ser Ser Val Asp Ile Ala Thr Lys Glu Asn Met Glu
 340 345 350
 Ser Leu Ile Ser Ile Gly Gln Glu Leu Leu Lys Lys Pro Val Ala Arg
 355 360 365
 Val Asn Ile Asp Thr Gly Leu Tyr Glu Ser Cys Asp Gly Glu Gly Thr
 370 375 380
 Asn Ala Gln Ser Leu Ala Asp Phe Ala Lys Gln Leu Ser Asp Glu Arg
 385 390 395 400
 Lys Leu Arg Lys Ser Asn Leu Asn Ser Asn
 405 410

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Met Gly Ser Ile Gly Arg Gly Thr Ala Asn Cys Ala Thr Val Pro Gln
1           5           10           15

Pro Pro Pro Ser Thr Gly Lys Leu Ile Thr Ile Leu Ser Ile Asp Gly
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Gly Gly Ile Arg Gly Leu Ile Pro Ala Thr Ile Ile Ala Tyr Leu Glu
35           40           45

Ala Lys Leu Gln Glu Leu Asp Gly Pro Asp Ala Arg Ile Ala Asp Tyr
50           55           60

Phe Asp Val Ile Ala Gly Thr Ser Thr Gly Ala Leu Leu Ala Ser Met
65           70           75           80

Leu Ala Ala Pro Asp Glu Asn Asn Arg Pro Leu Phe Ala Ala Lys Asp
85           90           95

Leu Thr Thr Phe Tyr Leu Glu Asn Gly Pro Lys Ile Phe Pro Gln Lys
100          105          110

Lys Ala Gly Leu Leu Thr Pro Leu Arg Asn Leu Leu Gly Leu Val Arg
115          120          125

Gly Pro Lys Tyr Asp Gly Val Phe Leu His Asp Lys Ile Lys Ser Leu
130          135          140

Thr His Asp Val Arg Val Ala Asp Thr Val Thr Asn Val Ile Val Pro
145          150          155          160

Ala Phe Asp Val Lys Ser Leu Gln Pro Ile Ile Phe Ser Thr Tyr Glu
165          170          175

Ala Lys Thr Asp Thr Leu Lys Asn Ala His Leu Ser Asp Ile Cys Ile
180          185          190

Ser Thr Ser Ala Ala Pro Thr Tyr Phe Pro Ala His Phe Phe Lys Ile
195          200          205

Glu Ala Thr Asp Gly Arg Pro Pro Arg Glu Tyr His Leu Val Asp Gly
210          215          220

Gly Val Ala Ala Asn Asn Pro Thr Met Val Ala Met Ser Met Leu Thr
225          230          235          240

Lys Glu Val His Arg Arg Asn Pro Asn Phe Asn Ala Gly Ser Pro Thr
245          250          255

Glu Tyr Thr Asn Tyr Leu Ile Ile Ser Val Gly Thr Gly Ser Ala Lys
260          265          270

Gln Ala Glu Lys Tyr Thr Ala Glu Gln Cys Ala Lys Trp Gly Leu Ile
275          280          285

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Gln Trp Leu Tyr Asn Gly Gly Phe Thr Pro Ile Ile Asp Ile Phe Ser
 290 295 300

His Ala Ser Ser Asp Met Val Asp Ile His Ala Ser Ile Leu Phe Gln
 305 310 315 320

Ala Leu His Cys Glu Lys Lys Tyr Leu Arg Ile Gln Asp Asp Thr Leu
 325 330 335

Thr Gly Asn Ala Ser Ser Val Asp Ile Ala Thr Lys Glu Asn Met Glu
 340 345 350

Ser Leu Ile Ser Ile Gly Gln Glu Leu Leu Asn Lys Pro Val Ala Arg
 355 360 365

Val Asn Ile Asp Thr Gly Leu Tyr Glu Ser Cys Glu Gly Glu Gly Thr
 370 375 380

Asn Ala Gln Ser Leu Ala Asp Phe Ala Lys Gln Leu Ser Asp Glu Arg
 385 390 395 400

Lys Leu Arg Lys Ser Asn Leu Asn Ser Asn
 405 410

<210> 293
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 <212> PRT
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Met Gly Ser Ile Gly Arg Gly Thr Ala Asn Cys Ala Thr Val Pro Gln
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Pro Pro Pro Ser Thr Gly Lys Leu Ile Thr Ile Leu Ser Ile Asp Gly
 20 25 30

Gly Gly Ile Arg Gly Leu Ile Pro Ala Thr Ile Ile Ala Tyr Leu Glu
 35 40 45

Ala Lys Leu Gln Glu Leu Asp Gly Pro Asp Ala Arg Ile Ala Asp Tyr
 50 55 60

Phe Asp Val Ile Ala Gly Thr Ser Thr Gly Ala Leu Leu Ala Ser Met
 65 70 75 80

Leu Ala Ala Pro Asp Glu Asn Asn Arg Pro Leu Phe Ala Ala Lys Asp
 85 90 95

Leu Thr Thr Phe Tyr Leu Glu Asn Gly Pro Lys Ile Phe Pro Gln Lys
 100 105 110

Lys Ala Gly Leu Leu Thr Pro Leu Arg Asn Leu Leu Gly Leu Val Arg
 115 120 125

Gly Pro Lys Tyr Asp Gly Val Phe Leu His Asp Lys Ile Lys Ser Leu
 130 135 140

Thr His Asp Val Arg Val Ala Asp Thr Val Thr Asn Val Ile Val Pro
 145 150 155 160

Ala Phe Asp Val Lys Tyr Leu Gln Pro Ile Ile Phe Ser Thr Tyr Glu
165 170 175

Ala Lys Thr Asp Ala Leu Lys Asn Ala His Leu Ser Asp Ile Cys Ile
180 185 190

Ser Thr Ser Ala Ala Pro Thr Tyr Phe Pro Ala His Phe Phe Lys Thr
195 200 205

Glu Ala Thr Asp Gly Arg Pro Pro Arg Glu Tyr His Leu Val Asp Gly
210 215 220

Gly Val Ala Ala Asn Asn Pro Thr Met Val Ala Met Ser Met Leu Thr
225 230 235 240

Lys Glu Val His Arg Arg Asn Pro Asn Phe Asn Ala Gly Ser Pro Thr
245 250 255

Glu Tyr Thr Asn Tyr Leu Ile Ile Ser Val Gly Thr Gly Ser Ala Lys
260 265 270

Gln Ala Glu Lys Tyr Thr Ala Glu Gln Cys Ala Lys Trp Gly Leu Ile
275 280 285

Gln Trp Leu Tyr Asn Gly Gly Phe Thr Pro Ile Ile Asp Ile Phe Ser
290 295 300

His Ala Ser Ser Asp Met Val Asp Ile His Ala Ser Ile Leu Phe Gln
305 310 315 320

Ala Leu His Cys Glu Lys Lys Tyr Leu Arg Ile Gln Leu Tyr Tyr Ala
325 330 335

Gly

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37